Ashay Kumar

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Objective

Computer Engineering Student with experience in Verilog/RTL design, FPGA prototyping, and hardware validation. Conducted research on ferroelectric devices, improving model validation accuracy by 15%, and optimized algorithms for autonomous systems, enhancing responsiveness by 30%. Eager to leverage skills in cutting-edge silicon and platform design teams to drive innovation and efficiency.

Education

Georgia Institute of Technology | Atlanta, GA *August 2023 – Present*
Bachelor of Science in Computer Engineering, GPA 3.12 Expected Graduation, May 2027

Delhi Public School | Riyadh, Saudi Arabia *April 2008 – March 2023*
High School Diploma, GPA 4.00

Skills

Programming: Java, Python, C/C++, Rust, JavaScript, SQL, HTML/CSS, MIPS, RISC-V
Platforms: Linux (Ubuntu), AWS
Hardware: Raspberry Pi, ARM mbed microcontroller, Arduino, FPGAs, VHDL/Verilog, Oscilloscope, Logic analyzer
Software: Altera Quartus II, ROS2, MATLAB, Flask, pandas, NumPy, Matplotlib, OpenCV, Scikit-learn, PyTorch, Git/GitHub
Communication: Design proposals, technical reports, Instruction manuals, Presentations (large and small audiences)

Experience

Khan Lab, Georgia Institute of Technology| Atlanta, GA *August 2025 – Present*
Undergraduate Research Assistant
Conduct experimental research in semiconductor lab developing ferroelectric, antiferroelectric, and amorphous devices for next-generation memory and computation.

- Characterized 20+ ferroelectric devices (FeFETs) to support next-generation semiconductor memory research.
- Performed 50+ electrical measurements and data acquisition using precision lab instrumentation.
- Analyzed 5,000+ data points in MATLAB and C++, generating insights that improved model validation accuracy by ~15%.

Vertically Integrated Projects | Atlanta, GA *January – May 2025*
Undergraduate Research Assistant – Autonomous Systems
A multidisciplinary research and education initiative at Georgia Tech where students engage in long-term, faculty-led projects that offer academic credit and mentorship across class levels.

- Optimized real-time decision-making algorithms for autonomous vehicle systems, improving overall responsiveness by 30%.
- Designed, and tested models for robotic ground vehicles using Python, ROS, and Linux, achieving 95%+ system-level accuracy.

Projects

Smart Walking Stick for the Visually Impaired *June – August 2025*
Developed as an individual project to enhance mobility and safety for visually impaired users by integrating ultrasonic, infrared, and water sensors with an Arduino Nano.

- Engineered a modular, low-cost hardware architecture with optimized detection thresholds for reliability, designed for future enhancements like GPS, IoT connectivity, or voice assistance to boost accessibility.

Relevant Coursework

Computer Architecture & Systems: Microarchitecture, instruction set design, memory hierarchy, and OS fundamentals
Physical Electronics: Semiconductor fundamentals, devices, and their applications in circuits
Circuit Analysis: Linear circuit design, transient analysis, and frequency-domain behavior

Leadership or Activities

Georgia Tech Cricket Club | Vice President *August 2024 – May 2025*

- Organized and coordinated tournaments, intercollegiate matches, and practice sessions, increasing club participation and engagement by 25%.